

XXVI.—*On the Cetoniidæ of Japan, with Notes of new Species, Synonymy, and Localities.* By GEORGE LEWIS, F.L.S.

THIS family, so far as is known at present, is represented in Japan by twenty-four species. Mr. Waterhouse, in the *Trans. Ent. Society*, 1875, recorded fourteen species, but one of these, *Glycyphana Sieboldi*, Voll., is now given as a synonym, and another, *Trichius fuscatus*, Linn., appears to have been recorded as Japanese by Motschulsky in error. Twelve species, therefore, have been recently added, bringing the number to about one third of those in Europe; but there are nine genera in Japan to only six on the Continent.

Judging from the records of the literature relating to the Cetoniidæ it would appear that naturalists have been unable to master the specific characters of the group. Thus *Cetonia aurata*, Linn., *C. floralis*, Fabr., and *C. floricola*, Herbst, have, according to the Munich Catalogue, 87 names to represent the types and their varieties, and *Trichius abdominalis*, Ménétr., has 18.

For these 105 names we find about 40 sponsors. The commoner the species the more numerous the titles, and it appears therefore fortunate when a species is unique. An author cannot give two names to one specimen, although, if not properly labelled, it may obtain a second on changing ownership.

A reference to the 'Zoological Record' will show that recently, to increase the confusion, writers have initiated "probable" synonyms. Harold says (*C. R. Ent. Belg.* xxiii. p. 5), "that *Cetonia Bensoni*, Westw., probably = *Glycyphana pilifer*, Motsch.;" Schaufuss records (*Nunq. Ot.* iii. p. 560), "that probably *Protelia* (sic) *brevitarsis*, Lewis, = *Cetonia submarmorea*, Burm. \*;" Kraatz tells us (*Deutsch. ent. Zeit.* xxvii. p. 317) that "*Micropæcila Bremeri*, Jans., probably = *M. cincta*, Gory, ♀;" and in another place, "*Diphognatha incoides*, Thoms., probably = *D. admica*, Hope."

Italics are insufficient to indicate these speculations, and capitals are too distinctive.

Of the 105 names given above 101 stand, as stated, as synonyms in Harold's Catalogue; but it is impossible not to doubt that these may require revision, for is it possible to unravel such a tangled mass of nomenclature in its entirety?

\* Schaufuss misquotes here; the sentence should read: "probably *Cetonia brevitarsis*, Lewis, = *Protelia submarmorea*, Burm."

The bright colours of the group have perhaps attracted the attention of some entomologists who, to say the least, have unwisely written on the family without sufficient previous study, or without the material adequate to the occasion. A glance at the Munich Catalogue and the pages of the 'Zoological Record' since 1880 should suggest to writers that great care is necessary to prevent the literature of the Cetoniidæ drifting into hopeless confusion. The "Ein Stück," which appears but too often at the foot of a description in Harold's paper on the Japanese Coleoptera, has been doubtless the means of misleading authors, who in a variable group have formed species on single specimens.

As an instance of work done on scanty material the three species of *Anomala* described as new by Harold (Deutsch. ent. Zeitschrift, xxii. pp. 351-353) may be given. Shortly after the publication of the paper Harold wrote to me to say the species were *Anomala rufocuprea*, Motsch., *Euchlora multistriatus*, Motsch., and *Anomala geniculata*, Motsch., respectively—insects which for their class are, and were then, well known.

The synonymy of the Cetoniidæ is added to, as I say, from their conspicuousness and the desire of entomologists to connect their names with them, while a less attractive family has a simpler catalogue. *Ceratorrhina viridipyga*, Lewis, is at once given a second name, *C. chloropyga*, Thomson, when names of similar compounds (*lævipygum*, *tuberculipygus*) in the Histeridæ are numerous and are allowed to remain single. The name of *C. viridipyga*, Lewis, will always be given priority, and *chloropyga*, Thomson, will always stand as a synonym, and a full reference to the beetle will require the mention of both names and a second line in the schedule. And in this instance has there been sufficient cause to add this line to our overburdened Catalogue? *Pyga* is a Latin word, and this Thomson does not seem to know.

### 1. *Rhomborrhina unicolor*, Motsch.

*Rhomborrhina unicolor*, Motsch. Etud. Ent. 1861, p. 8.

This species occurs not rarely in the north of Japan, but it is scarce in Kiushiu.

### 2. *Rhomborrhina polita*, C. Waterh.

*Rhomborrhina polita*, C. Waterh. Trans. Ent. Soc. 1875, p. 113.

The localities for this insect are Bukenji, where it is common in August, Kadzusa, and the island of Sado.

3. *Rhomborrhina japonica*, Hope.

*Rhomborrhina japonica*, Hope, Trans. Ent. Soc. iii. 1841, p. 64.

*Rhomborrhina chypeata*, Hope.

*Rhomborrhina squammulifera*, Thoms.

*Rhomborrhina glauca*, Thoms.

This variable species is extremely abundant, and on one tree Mr. Pryer has taken 125 specimens in twenty-four hours. The three species follow the *cossus* for the sake of the exuding sap caused by the larvæ.

There is a beetle known to the Japanese as the Shikamushi, or "stag-beetle;" the horns are said to be fixed, and a specimen of *Dicranocephalus*, taken to Japan, has been identified as resembling it. The Lucanidæ are vulgarly termed "scissor-beetles," as their mandibles open and close.

1. *Cetonia confusiusana*, Thoms.

*Cetonia confusiusana*, Thoms. Typi Cetonidarum, p. 23 (1878).

The pygidium in the male is reflexed at the apex and very convex, and resembles a boss in form; but the female is only transversely impressed, somewhat unevenly on both sides. In colour this species varies from a deep crimson to bronze and green, and is very common in S. Japan, but I did not find it in Yezo. I believe the brighter examples have been mistaken for *C. speculifera*, Swartz, which has been hitherto only found in China and the Philippine Islands.

2. *Cetonia submarmorea*, Burm.

*Cetonia submarmorea*, Burm. Handb. iii. p. 490.

The male of this species has an abdominal groove.

3. *Cetonia brevitarsis*, Lewis.

*Cetonia brevitarsis*, Lewis, Ann. & Mag. Nat. Hist. 1879, iv. p. 463.

This species is found in Japan, as far north as Kioto. The pygidium is very slightly convex and superficially even, and is quite distinct in form from that of *C. confusiusana*. There is a series in the British Museum from Korea.

4. *Cetonia insperata*, Lewis.

*Cetonia insperata*, Lewis, Ann. & Mag. Nat. Hist. 1879, iv. p. 463.

I took about thirty examples in Yezo. Vries Island, Chiuzenji, Nikko, Wada-togé are other localities for it.

5. *Cetonia Lenzi*, Harold.

*Cetonia Lenzi*, Harold, Abh. Ver. Brem. v. p. 128 (1876).

The thorax in this species is raised longitudinally in the

centre, and is thus divided into two equal parts; the pygidium is the same as in *brevitarsis* and *insperata*. I obtained six specimens in June at Kioto.

6. *Cetonia pilifer*, Motsch.

*Glycyphana pilifer*, Motsch. *Etud. Ent.* 1860, p. 15.

Common everywhere.

7. *Cetonia Roelofsi*, Harold.

*Glycyphana Roelofsi*, Harold, *C. R. Ent. Belg.* xxiii. p. 5 (1880).

Not very common, occurs at Miyanoshita and Nikko.

1. *Glycyphana forticula*, Janson.

*Glycyphana forticula*, Janson, *Cist. Ent.* ii. 1981, p. 607.

Is at present unique in Mr. Janson's collection.

2. *Glycyphana jucunda*, Fald.

*Glycyphana jucunda*, Fald. *Mém. Ac. Petr.* ii. p. 386.

*Glycyphana Goryi*, Guérin.

*Glycyphana argyrosticta*, Burm.

*Glycyphana Kuperi*, Schaum.

*Glycyphana albosetosa*, Motsch.

I believe the names above refer to one species, and that this is the view also taken by Harold, Janson, and others. *G. jucunda*, I have taken abundantly in Shanghai, the examples there generally having a broad red fascia on each elytron. *G. albosetosa* is a black form of the species, and comes chiefly from Yezo; it is the most abundant species of the family in Japan.

3. *Glycyphana fulvistemma*, Motsch.

*Glycyphana fulvistemma*, Motsch. *Schrenck's Reis.* 1860, p. 135.

*Glycyphana Sieboldi*, Voll. 1864.

This is of common occurrence, particularly at Kobe and Nikko.

1. *Anthracophora rusticola*, Burm.

*Anthracophora rusticola*, Burm. *Handb.* iii. p. 624.

*Anthracophora rama*, Bainbridge, 1842.

*Anthracophora sinensis*, Saunders, 1852.

This species is common in Kiushiu, but has not yet been observed north of Kioto.

1. *Osmoderma opica*, Lewis.

*Osmoderma opica*, Lewis, *Wien. ent. Zeitung*, 1887.

This is probably the species taken by Dr. Hoffmann in Tokio, and recorded by Von Harold as *barnabita*, Motsch. (*Deutsche ent. Zeitschrift*, xxii. Heft i. p. 12).

1. *Gnorimus viridiopacus*, Lewis.

*Gnorimus viridiopacus*, Lewis, Wien. ent. Zeitung, 1837.

Found at Chiuzenji rather late in the summer.

Three examples.

2. *Gnorimus subopacus*, Motsch.

Mr. Bowring obtained this species many years ago on the island of Tsushima, and I have five examples from the same locality, taken in 1881. I also took one at Sapporo.

1. *Paratrichius Donitzi*, Harold.

*Paratrichius longicornis*, Janson, Cist. Ent. ii. p. 611, pl. xi. fig. 1 (1881),  
= *Gnorimus Donitzi*, Harold.

The latter name has the priority, but the generic name proposed by Janson it is well to retain. I bred the species from pupæ in June, and found the imagos in flowers in August on the high ranges bordering the mountain-forests on Oyayama, Niohosan, Ontake, and Wada-togé. Janson records it from Yezo.

The females are always black, but the males vary in colour and look very much like *Trigonopeltastes*. There is one male with the elytra almost wholly black.

1. *Trichius japonicus*, Janson.

I obtained this species from *Deutzia*-flowers at Nikko in June 1880, and this appears to be its most southern locality. On August 7, same year, it was abundant at Sapporo, in the umbels of the gigantic *Angelica*, where, being some feet out of reach and very active on the wing, it was difficult to capture in an inverted umbrella. *Trichius fasciatus*, L., has been reported erroneously from Japan instead, possibly, of this insect.

2. *Trichius succinctus*, Pallas.

*Trichius succinctus*, Pallas, Ic. Ins. p. 18, t. A. fig. 19; Burm. Handb. iii. p. 753.

This species is recorded here from Japan for the first time. It occurred on Oyayama and at Nikko and Sapporo, but only eight examples were taken, so it must be considered rare in Japan.

3. *Trichius septemdecimguttatus*, Voll.

*Trichius septemdecimguttatus*, Voll. Tijdschr. Ent. Nederl. vii. 1864, p. 159; C. Waterh. Trans. Ent. Soc. 1875, part i. p. 71, pl. iii. fig. 8.

This species is only at present known from the island of Kiuskiu. It was found not uncommonly in *Viburnum*-flowers at Konosé, May 19, 1881, and about twenty specimens were dug out of an old log (*Planera*) the same day, five of which

are wholly red. With the latter were captured about twenty examples of *Figulus binodulosus*, C. Waterh. (Trans. Ent. Soc. 1883, p. 339). This is a curious record of the meeting in a common habitat of a northern and a tropical genus.

1. *Valgus angusticollis*, C. Waterh.

This species, as Mr. Waterhouse states, is common in all the Japanese islands. On the 13th March, 1880, I broke up a pole of "Matzu" (*Abies*), 4 inches in diameter, and quite rotten, and about fifty specimens tumbled out. Later it occurs in most flowers, but especially in the rape-fields and dog-roses.

2. *Valgus fumosus*, n. sp.

Breviter ovatus, ater, ocellato-punctatus, subnitidus; thorace parum lato medio bicarinato, utrinque excavato; elytris lateribus punctatis, mediis punctato-rugosis, scutello circum et fascia transversa luteis; propygidio transverso luteo-fasciato, utrinque acute tuberculato; pygidio medio longitudinaliter anguste fasciato, apice inconspicue bituberculato, tibiis anticis 2-dentatis. L.  $7\frac{1}{2}$  mill.

This species resembles *V. tuberculatus* only in the acute tubercle on the edge of the propygidium. The whole of the species is densely black ornamented with orange-coloured scales, which are arranged on the elytra in a broad band round the scutellum, with another transverse band which touches the edge of the first fascia and extends to the middle of each elytron from the suture, on the propygidium in a parallel transverse band, and on the pygidium in a longitudinal and narrow band down the centre. The thoracic carinæ are somewhat loop-like in form and terminate abruptly behind the neck in two obtuse angles; in front of the lateral excavations on each side is a tubercle or very short carina, and the base of the thorax has a well-marked excavation before the scutellum. The outer edge of the thorax is narrowly elevated and deeply sinuated behind the eyes. The yellow fasciæ are composed of rather large scales, and are apparently easily lost by abrasion, but the description is drawn from an example fresh from the pupa. The two teeth on the fore tibia are near to the femur.

Found in the flowers of *Hydrangea*, at Junsai, 28th July, 1880; Fukushima, Ontake, and Chiuzenji, in 1881. Five specimens in all.

3. *Valgus tuberculatus*, n. sp.

Breviter ovatus, granulosus, rufo-piceus, subnitidus; thorace parum angustato, 8-tuberculato; elytris castaneis, mediis obscure nigro-

plagiatis; propygidio utrinque tuberculato, medio bituberculato approximato; tibiis anticis 4-dentatis; pedibus rufis. L.  $7\frac{1}{4}$  mill.

This species, although it has allies in Eastern Asia, is very different from either of the preceding. In the middle of the anterior part of the thorax there is a loop-like carina terminating posteriorly in two acute and well-defined tubercles, and between each of these and the lateral edge is another somewhat obsolete tubercle. The base of the thorax is transversely occupied by four large equidistant tubercles, which are covered with flavous spinose scales. The scutellum is black. The elytra are nearly quadrate, castaneous, with coarse spines on the humeral and corresponding apical angles, and in the middle are two large ill-defined patches of black spinose scales. The propygidium has two tubercles in the middle, clothed like the basal thoracic ones, and at the outer apical edge on either side is a remarkable tooth, very acute and free of scales. At the extremity of the pygidium are two tufts of flavous scales or spines, which apparently cover two small tubercles.

Found at Fukushima, July 28, and at Kurigahara Usui-togé, August 6, 1881. From the dates of capture given here *V. tuberculatus* and *V. fumosus* seem to appear much later in the year than *V. angusticollis*; and if so, their late appearance may be an indication that they belong to the more tropical forms of the genus. Still, as they are evidently scarce, the time of capture may be merely incidental to the time of my visit to their localities. One thing, however, is certain, that *V. angusticollis* is, as Mr. Waterhouse has stated, allied to the northern and European species *hemipterus*.

#### List of Species arranged generically.

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|---------------------------------------|---|
| Rhomborrhina unicolor, <i>Motsch.</i> | Kuperi, <i>Schaum.</i>                  |
| — polita, <i>C. Waterh.</i>           | albosetosa, <i>Motsch.</i>              |
| — japonica, <i>Hope.</i>              | Glycyphana fulvistemma, <i>Motsch.</i>  |
| [clypeata, <i>Hope.</i>               | [Sieboldi, <i>Voll.</i> ]               |
| squammulifera, <i>Thoms.</i>          | Anthracophora rusticola, <i>Burm.</i>   |
| glaucæ, <i>Thoms.</i> ]               | [rama, <i>Bainbridge.</i>               |
| Cetonia confusiusana, <i>Thoms.</i>   | sinensis, <i>Saunders.</i> ]            |
| — submarmorea, <i>Burm.</i>           | Osmoderma opica, <i>Lewis.</i>          |
| — brevitarsis, <i>Lewis.</i>          | Gnorimus viridiopacus, <i>Lewis.</i>    |
| — iusperata, <i>Lewis.</i>            | — subopacus, <i>Motsch.</i>             |
| — Lenzi, <i>Harold.</i>               | Paratrichius Donitzi, <i>Harold.</i>    |
| — pilifer, <i>Motsch.</i>             | [longicornis, <i>Janson.</i> ]          |
| — Roelofsi, <i>Harold.</i>            | Trichius japonicus, <i>Janson.</i>      |
| Glycyphana forticula, <i>Janson.</i>  | — succinctus, <i>Pallas.</i>            |
| — jucunda, <i>Fald.</i>               | — septemdecimguttatus, <i>Voll.</i>     |
| [Goryi, <i>Guérin.</i>                | Valgus angusticollis, <i>C. Waterh.</i> |
| argyrosticta, <i>Burm.</i>            | — fumosus, <i>Lewis.</i>                |
|                                       | — tuberculatus, <i>Lewis.</i>           |